

EXHIBIT 8



US010984911B2

(12) **United States Patent**
Smith et al.

(10) **Patent No.:** US 10,984,911 B2
(45) **Date of Patent:** Apr. 20, 2021

(54) **MULTIPLE WAVELENGTH SENSOR
EMITTERS**(71) Applicant: **Cercacor Laboratories, Inc.**, Irvine, CA (US)(72) Inventors: **Robert A. Smith**, Lake Forest, CA (US); **David Dalke**, Rancho Santa Margarita, CA (US); **Ammar Al-Ali**, San Juan Capistrano, CA (US); **Mohamed K. Diab**, Ladera Ranch, CA (US); **Marcelo M. Lamego**, Cupertino, CA (US)(73) Assignee: **Cercacor Laboratories, Inc.**, Irvine, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **17/028,655**(22) Filed: **Sep. 22, 2020**(65) **Prior Publication Data**

US 2021/0007634 A1 Jan. 14, 2021

Related U.S. Application Data(63) Continuation of application No. 16/437,611, filed on Jun. 11, 2019, which is a continuation of application
(Continued)(51) **Int. Cl.**
A61B 5/1455 (2006.01)
G16H 40/67 (2018.01)
(Continued)(52) **U.S. Cl.**
CPC *G16H 40/67* (2018.01); *A61B 5/0022* (2013.01); *A61B 5/0205* (2013.01); *A61B 5/0261* (2013.01); *A61B 5/0295* (2013.01);*A61B 5/02416* (2013.01); *A61B 5/1455* (2013.01); *A61B 5/1495* (2013.01);
(Continued)(58) **Field of Classification Search**None
See application file for complete search history.(56) **References Cited**

U.S. PATENT DOCUMENTS

3,316,395 A 4/1967 Lavin
3,316,396 A 4/1967 Lavin
(Continued)

FOREIGN PATENT DOCUMENTS

DE 3244695 C2 10/1985
EP 0 231 379 8/1987
(Continued)

OTHER PUBLICATIONS

US 8,845,543 B2, 09/2014, Diab et al. (withdrawn)
(Continued)*Primary Examiner* — Eric F Winakur*Assistant Examiner* — Marjan Fardanesh(74) *Attorney, Agent, or Firm* — Knobbe, Martens, Olson & Bear, LLP(57) **ABSTRACT**

A physiological sensor has light emitting sources, each activated by addressing at least one row and at least one column of an electrical grid. The light emitting sources are capable of transmitting light of multiple wavelengths and a detector is responsive to the transmitted light after attenuation by body tissue.

29 Claims, 48 Drawing Sheets